

## **ABSTRACT OF THE DISCLOSURE**

A mechanical breathing aid for providing a regulated supply of a breathing gas has an expiratory pressure regulator for regulating gas pressure within an expiration gas flow path dependent on an input regulatory signal and an expiratory pressure sensor disposed to sense an actual gas pressure within the expiration gas flow path and to provide an output signal indicative thereof. A control unit is operably coupled to the expiratory pressure regulator and to the expiratory pressure sensor for calculating a target pressure as a function of time dependent on a value of compliance calculated from measurements of pressure and flow of provided breathing gas made during an inspiration phase, and for generating the regulatory signal dependent on a magnitude of the difference between the target pressure and the actual pressure.